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Friend or Foe? — Digital Resources Within Library Collections

by **Julian Everett Allgood** (Serials Cataloger, New York University Libraries) <everett.allgood@nyu.edu>

During the mid-1990s electronic journals became more and more common in library collections. Upon witnessing the willingness of libraries to purchase and embrace digital versions of their journal subscriptions, several vendors soon began offering electronic monographs or eBooks as well. Along with these digital reproductions, libraries also began collecting “born digital” resources. The digital era had begun and libraries were among the first to begin grappling with the potential impact.

Today, roughly ten years later, seems a good time to assess those impacts, both real and imagined. Granted, libraries remain in a transitional period as increasing numbers of institutions cancel print subscriptions in favor of electronic, yet continue to struggle to provide continuous access, timely cataloging and uniform licensing language for these resources. Nonetheless, the digital landscape has settled considerably since the wild, wild Web days of the 1990s, so a progress report appears appropriate.

When asked to write about how the transition to embrace electronic resources has transformed libraries and library collections, I came up with four broad themes. Each seems rather obvious today, but when electronic resources first burst upon the scene these developments were not widely considered.

The Loss of the Artifact

Though it may seem to be nothing more than the next logical step in the information continuum, the mainstreaming of remotely accessed digital resources actually represents a break with a 5,000 year-old library tradition. From the development of writing in Egypt and the Mesopotamian Valley during the Fourth Millennium B.C.E., libraries and archives have always received physical manifestations, or artifacts, for their acquisitions. Whether in the form of clay tablets, rolls of papyrus, books, folios or archival collections, the resources libraries chose to acquire, collect, and preserve could be held in the hand. With the transition to electronic resources and specifically remotely accessed electronic resources, this has all changed with both positive and negative effects.

On the positive side, these remotely accessed digital resources do not require ever-dwindling shelf space within overcrowded libraries. Also, for approved library users, remotely accessed resources are available from a computer interface anywhere in the world no longer requiring a trip across campus or downtown to a library building. On the negative side, libraries have been forced

to redouble our efforts to educate this new generation of e-resource vendors (as well as congressional representatives) on such fundamental library tenets as fair use and perpetual access. In the old world when a library cancelled a serial subscription, they retained all received print or microform or CD-ROM issues. In the new digital world where there is no physical artifact, there is no such guarantee.

This loss of the artifact has also required changes in the way libraries provide access to, or catalog, remotely accessed digital resources. In the old world of physical issues, it was quite easy for a cataloger with the full run of a serial title to determine exactly where each title change occurred. In the Web environment, it is just as easy (and common) for a publisher to “reformat” all electronic issues of a serial with the title said publisher prefers. Within such an environment serial title changes often become more difficult to discern and therefore more confusing for users. Serials cataloging rules have been revised to account for such volatility and to lead users to the journal content they seek.¹ But the fact that such changes can and do occur has required heightened awareness and flexibility on the part of all library personnel working with serials and continuing resources. Also on the negative side is the constant diligence libraries must provide to ensure that all remote resources are indeed available to users, especially those resources the library purchases. Such diligence ranges from regular URL checking to ensuring that all licenses include language granting perpetual access to purchased resources even when a subscription is subsequently cancelled. Power outages and network failures are of course devastating for those resources only available remotely.

The Anglicizing (or Americanization) of Library Collections

An increasing concern among Area Studies librarians, and anyone not completely enamored with the American Empire, is that those libraries collecting Web-based resources face a serious challenge in developing strong non-English and non-Western electronic collections. While this may have improved somewhat in recent years, it remains true that a significant majority of World Wide Web content is English and Western European language material with a strongly American or Western European bias. There are numerous

reasons for this: globalization, for example, which is largely a Western initiative. Also, in America and Western Europe, electricity and high-speed Internet connections are the norm. How-

ever, consider other areas of the globe representing significant percentages of the world population wherein such requisites for producing

and maintaining Web-based content are not commonplace. For example, in Iraq, America's latest colonization effort, a recent *New York Times* article indicates that the capital city of

Baghdad currently enjoys an average of 3-5 hours of electricity per day.² Librarians have always prided themselves on building well-rounded collections exhibiting as little bias as possible. On a playing field as skewed as the World Wide Web though, this core mission is significantly hampered for Area Studies librarians and those interested in building non-Western collections.

There are other dark aspects of this move toward digital libraries and the mainstreaming of remotely accessed digital resources within library collections. For example, the electronic-versus-traditional paradigm further separates the world into “haves” and “have nots.” This is an alarming and disturbing trend, especially when considered within the context of the typical library mission statement. Consider our earlier “positive” example of Web-based resources enhancing user access “for approved library users.” This is a distinction I am not overly comfortable with. Information is available for the betterment of all, not some anointed constituency of crimson-shrouded acolytes. It contradicts the basic library tenet of altruism for librarians to say otherwise. Another somewhat troubling aspect of Web-based electronic resources is strictly pragmatic and overlaps with the previous theme discussing the loss of the artifact. A lifetime ago I worked for a few years as an archaeologist in the Mediterranean, an area teeming with past overlapping civilizations and cultures. Consider the archaeologist studying the remnants of our own civilization one thousand (or be optimistic and say ten thousand) years from now. Archaeology is a complex science, relying heavily upon tactile and sensory input. An archaeologist can typically only comprehend and interpret what she can hold in her hands and/or see with her eyes. Getting a power grid up and running in order to surf the Web for a better

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understanding of a library's collection will more than likely not be an option for those studying our civilization in the future. Therefore, if most of humanity's later accomplishments are recorded in digital form only, their content, and therefore their interpretation and analysis, may well be lost to future civilizations.

MulVer on Steroids³

The **Multiple Versions (MulVer)**, or format variation, problem within library collections has never been resolved satisfactorily. **MulVer** results from a number of factors, but primarily it is an endemic challenge within the automated library environment. When identical (or near identical) content is reproduced and available for users in a range of formats (e.g., print, microfilm, microfiche, CD-ROM, diskette, online, etc.), librarians shudder and refer to it as the multiple versions problem. **MulVer** reaches the crisis level in automated **OPACs** via application of the so-called "cardinal principle" (**Rule 0.24**) of the cataloging code, the *Anglo-American Cataloging Rules (AACR2)*, which most catalogers interpret to mean: for each separate manifestation (i.e., version) create a separate bibliographic record.

For monographs, the **MulVer** problem is not so pronounced — the occasional duplicate record for a manifestation the library holds in two distinct formats (e.g., one print and one electronic) is not so horrible. Users may be annoyed with such duplicate **OPAC** records, but they get over it. However for serial resources, especially within research libraries containing long runs of thousands of serial works and expressions, the **OPAC** results are infuriating.⁴ Consider the library that holds the entire run of a serial title with the earliest issues on microfilm, later issues on microfiche and current issues in print and online. Strict adherence to **AACR2 Rule 0.24** would require the library **OPAC** to contain at least four separate bibliographic records for this single serial expression, one for each physical and virtual manifestation. The library's holdings for each of these manifestations must then be distributed among these four bibliographic records. Now consider the accursed library **OPAC** user. She approaches the **OPAC** more often than not with an article citation in hand, either from an abstracting and indexing service or from a bibliography. Presuming she is fortunate enough to find the journal title she needs, that she must then scroll through four separate (but equivalent) **OPAC** records in order to determine which *format* the needed volume is held by the library in seems nothing short of masochistic. It is no wonder that **Google** has become today's college student's research library of choice.

Wait, it only gets worse! Taken to its logical conclusion, the above interpretation of

Rule 0.24 within **AACR2** requires a separate **OPAC** record not only for the online manifestation, but a separate **OPAC** record for *each* online manifestation. With various portions of serial content available simultaneously from multiple online providers, the number of bibliographic records in **OPACs** for a single serial expression commonly becomes enough to confuse and frustrate even the most determined library user. As **Amy Weiss** wrote recently, "Since electronic data can be republished at almost no cost, multiple versions, many with only minor changes from the previous version, are [today] the rule rather than the exception."⁵

The Rise of the ERMs

Had someone asked me ten years ago to discuss **ERM** systems, I would probably have guessed it was some type of Internet company or perhaps some high-tech medical device. Today though **Electronic Resource Management (ERM)** systems are all the rage, and judging from the most recent "Big Heads" round robin discussion (2006-01 RLG Technical Services Strategy Focus Group: Round Robin, question 8) most large research libraries have either implemented one or are in the process.

The value of an **Electronic Resource Management** system is that it collects and coordinates much of the administrative metadata regarding electronic resources that falls through the cracks of traditional integrated library management systems (ILMS). Within today's increasingly distributed information landscape, librarians and information professionals are hard pressed to keep up. **ERM** systems manage constantly changing administrative metadata and other aspects of electronic resources that do not lend themselves to management via traditional ILMS systems. For example, the typical ILMS system cannot easily track the constant ebb and flow of serial titles within large aggregator databases (e.g., **ProQuest**, **LexisNexis**, etc.), or titles that are selectively covered, or titles available for trial periods, or the length of those trials. Beginning in the late 1990s, **Tim Jewell** of the **University of Washington** and the **Digital Library Federation (DLF)** studied electronic resources systematically and developed a data dictionary of over 300 data elements necessary to describe and manage their behavior efficiently.⁶ The **DLF Electronic Resource Management Initiative (DLF ERMI)** continues this work. Among **DLF ERMI's** laudable accomplishments has been bringing librarians, technologists, systems vendors, and standards organizations together.⁷ The **ERM** systems that librarians see today employ a subset of those 300 data elements from **Jewell's** report.

Innovative Interfaces (III) introduced the first commercial **ERM** system available to libraries. Among its chief selling points was that it could be used as a standalone (with another vendor's ILMS system), or coupled

with **III's Millennium ILMS**. The ability to use this **ERM** system with another ILMS proved a huge advantage, and many non-**III** libraries purchased the product. Since then other ILMS vendors such as **Ex Libris** and **Endeavor** have developed **ERM** systems. It is widely believed among librarians that **ERM** systems will eventually be integrated as just another component with the Acquisitions, Cataloging, Circulation, **OPAC** and Reserves modules within all integrated library management systems.

Around the Bend ...

I've been asked to break my crystal ball out of semi-permanent retirement in order to discuss how librarians and information professionals may (or should) respond to each of these four challenges. I'm not convinced there is a lot librarians can or should do regarding the loss of the artifact. As stated above there are indeed positive aspects of this development and it can be seen as a rather foreseeable outcome of technological innovation. However, as my discussion of preserving and ensuring accessibility to humanities' achievements for future generations illustrates, it remains vital for library collections to archive our digital collections (perhaps even with the occasional hard copy). Libraries must also be aware of the need to regularly migrate data to newer storage media. Remember, today's bleeding edge technology is tomorrow's eight-track tape!

The homogenization and narrowing of library collections is a grave concern for librarians. A library's special collections, including Area Studies, are what makes it unique and transform a collection into a research facility. If libraries are all collecting the same preselected online packages, none are special, and our patrons and civilizations suffer. This places tremendous pressure upon Area Studies and Special Collections librarians to unearth, collect and preserve digital content that is unique. I also hope that the World Wide Web continues to evolve from its early days in the 1990s when content was almost exclusively English language and Western-based. Area Studies librarians must encourage, document, and preserve initiatives to create additional non-English, non-Western Web content. Sociologists have written recently of the alarming rate at which entire cultures and regional language dialects are disappearing beneath the march of globalization. Their findings suggest that once they disappear, these cultures and languages are typically gone forever.

Regarding my other two observations on the transformation electronic resources have wrought upon libraries, I have specific advice for librarians and information professionals: complain to and encourage development efforts on the part of your ILMS vendors. ILMS **OPAC** displays have received little development attention since they replaced

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card catalogs over 20 years ago. Consequently, today's **OPAC** displays in many ways represent little more than automated card catalogs. This represents a complete lack of initiative and creativity on the part of **ILMS** vendors and systems designers. That libraries allow vendors to provide such poor performance and remain in business is just as objectionable. For instance, the **MulVer** problem has been widely recognized and lamented for decades. Given today's technological environment, advances with the **MARC 21** formats for storing and exchanging bibliographic and holdings data, and a savvy systems designer willing to reprogram an **OPAC** display, the multiple versions issue appears to be a very solvable problem. Our **MARC** records and cataloging codes are filled with the necessary data elements and instructions to conflate numerous equivalent manifestation-level records into a single comprehensive yet understandable **OPAC** record display. The time has come for librarians to push **ILMS** vendors and systems designers to acknowledge that data storage and exchange is very different from data display. The manner in which data is stored in an **ILMS** system does not (and in fact probably *should* not) correspond to the manner in which that data is displayed. Why can't **ILMS** systems store multiple records representing multiple manifestations of the same work or expression for staff use, *and* display them as a single, coherent record for patrons, with clear access points to all available content?

Similarly, I believe both **ILMS** vendors and librarians also share the blame for the somewhat cobbled-together approach to **Electronic Resource Management** systems. That acquisitions librarians have not developed standards and demanded that **ILMS** vendors follow them within such a standards-conscious field is difficult to understand. Libraries across the country and around the world are obviously keying identical or at least very similar data points into **ILMS** acquisitions modules. Why not develop standards to facilitate and streamline the process? The **DLF Electronic Resource Management Initiative** described above is a good start, but it is still not established as a formal standard (<http://www.diglib.org/standards/dlf-erm02.htm>)

I can think of another compelling reason for acquisitions librarians to develop and adhere to standards. **NYU** is currently in the midst of an **ILMS** migration and expects to go live with **VTLS** during the summer of 2006. Formulating and following standards allows for much smoother data migrations. During the migration at **NYU**, acquisitions personnel will be forced to basically rebuild and re-key a great deal of acquisitions data into the new system. If there were standards

against the grain people profile

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EDUCATION: B.A., Birmingham-Southern College; M.A., Emory University; M.L.S., University of Alabama, Tuscaloosa.

PROFESSIONAL CAREER AND ACTIVITIES: I have been the Serials Cataloger at New York University for nine years. Since 2002, I have also been the MARBI Representative to CC:DA (ALCTS Committee on Cataloging: Description and Access.)

IN MY SPARE TIME I LIKE TO: Paint, read, run — however, I have two young children at home, so I have very little spare time.

PET PEEVES/WHAT MAKES ME MAD: Poor government (i.e., I've been mad a lot lately!)

HOW/WHERE DO I SEE THE INDUSTRY IN FIVE YEARS: Technology is developing so rapidly it is difficult to see where libraries and the information industry will be five years from now. I believe that technology will continue its blistering pace, and with it libraries will need to embrace new forms of media and communication and information gathering. Our means of conveying and displaying this information to users is long overdue for a dramatic overhaul.

I like to think that library buildings will remain an integral component within communities. However I feel fairly certain that users will be less required to visit libraries in order to do research and gather information. Information will be *pushed* out in a variety of media to those users fortunate enough to own the requisite devices. This represents both an exciting, and an alarming, development for libraries. 🐼

in place allowing for smooth data exchanges between systems, acquisitions personnel would instead be ready to begin Ordering and Receiving in the new system almost immediately. Imagine if Catalog Librarians had to re-key every bibliographic, holdings and authority record following each **ILMS** migration? When one considers that the acquisitions module represents the point-of-entry in the information life cycle of most library resources, it makes little sense to require library personnel to re-key much of this data each time a library migrates to a new **ILMS** system. To say nothing of the audit trails and expenditure records today's Acquisitions Departments routinely maintain.

All of this is certainly not to say that **ILMS** vendors should be considered blameless in being so late to see the necessity for **ERM** systems. As stated earlier, many libraries began collecting electronic resources over ten years ago. That **ILMS** vendors and systems designers did not foresee the need for enhanced acquisitions functionality in order to fully manage the behavior of electronic resources again demonstrates a profound lack of initiative and creativity. Furthermore as there are so few acquisitions standards defining and coordinating metadata within **ILMS** Acquisitions modules, I for one do not fully understand the need for an entire new **ERM** module? Continuing Resources Librarians

have been complaining about lackluster acquisitions and serials modules for years. So it is not as though **ILMS** vendors would therefore have been risking an existing satisfied customer base. Why didn't they take this opportunity to improve the design and performance of their existing acquisitions modules, and simultaneously enhance the acquisitions module capabilities to manage electronic resources?

Conclusion

So where does all of this leave us? Have we clearly established the *true* role of electronic resources within library collections? Are they friend or foe? Personally I feel libraries have reached the tipping point. Electronic resources today are as much a part of library collections as any of the other storage media libraries have seen fit to collect during the last 5,000 years. Pragmatically, I believe this article demonstrates some of the understandable concerns librarians face when integrating electronic resources into our collections. But grappling with and overcoming such concerns is part of our job, and it is also a challenge librarians have faced before when incorporating other new materials into our collections. Some of the specific challenges associated with electronic resources, from access to cataloging to preservation, are what make them so vibrant and exciting. The dy-

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namism of electronic resources is also what makes it important for us to collect them if indeed libraries wish to remain relevant in a rapidly changing Information Age.

Earlier I stated that librarians and libraries had reached the tipping point with electronic resources. This is why I think so. Several years ago when the **CONSER Program** developed the Single-Record Approach to help serials catalogers deal with the increasingly common phenomenon of print and online manifestations of a serial expression, there was little question which of the two was considered the primary or "original" manifestation. The print was considered the primary manifestation and therefore serials catalogers used the print bibliographic record as the **OPAC** description and attached the electronic manifestation attributes to it. Today I would say that many serials catalogers and most serials publishers have reversed their opinions and now consider the digital manifestation as primary.

The print-to-electronic dynamic has come full circle during the last ten years and that is exciting. Most publishers and many libraries now consider digital manifestations of resources to be the primary or original content form. However, this does not mean that librarians need to discard everything

we have learned. The coming years represent a period of transition in which libraries and collections will further refine model practices for how best to continue serving our patrons as more and more of our col-

lections become available remotely. Electronic resources simply represent another in the rich array of information media entrusted to librarians and library collections to fulfill that mission. 🌱

Endnotes

1. In fact, the entire cataloging code (AACR2) is currently being revised. The integration of electronic resources within library collections is not solely responsible, but was certainly a contributing factor.
2. The new cataloging code is to be published in 2008, and is tentatively entitled *Resource Description and Access* (RDA). Some people involved in the process are concerned that the Joint Steering Committee for Revision of AACR (JSC) may be rushing to produce a cataloging code to accommodate the publisher's schedule without fully exploring the need to re-examine the code's underlying principles and intentions. This rush to publish seems especially troubling in light of today's publishing and information environment and the changes the publishing world has experienced during the last ten years.
3. Paul Krugman. "State of Delusion," *New York times* Feb. 3, 2006: A-23; see also, Knickmeyer, Ellen. "Baghdad Neighborhood's Hopes Dimmed by the Trials of War" *WashingtonPost.com*, September 27, 2005.
4. I have written an extensive article addressing the ongoing MulVer problem for serial resources in far more detail than presented here. The article has been submitted for publication and I hope to see it published within the coming months.
5. The confusion and frustration experienced by library users of serial resources led the Cooperative Online Serials Program (CONSER) component of the Program for Cooperative Cataloging (PCC) to develop two alternative approaches: the Single-Record Approach, and in response to proliferating online serial manifestations, the Aggregator-Neutral Record.
6. Both approaches circumvent and to some extent undermine the cataloging code. However, such pragmatic solutions are required when ILS systems designers fail so miserably for so long at what should be seen as one of their primary missions: to display library data for users understandably.
7. Amy K. Weiss. "Proliferating Guidelines: A History and Analysis of the Cataloging of Electronic Resources," *Library Resources and Technical Services* 47, no. 4 (2003): 171.
8. *DLF Electronic Resource Management Initiative report*. Washington, D.C.: Digital Library Federation, 2004. Accessed Mar. 9, 2006 <http://www.diglib.org/standards/dlf-erm02.htm>.
9. Ibid.

Managing Digital Resources, or, How Do You Hold Electrons In Your Hand?

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In the 1995 publication *New Automation Technology for Acquisitions and Collection Development*, **Nancy Markle Stanley** wrote a chapter entitled "Purchasing Electronic Resources: an Acquisitions Perspective" in which she outlines the challenges of managing electronic resources. I had to chuckle a bit when I read the book, because at the time of its publication, my undergraduate library was in the process of finally automating their catalog. The evolution of electronic resources in libraries has all of the characteristics of technological innovation. There are libraries with the funding and vision to be early adopters, and there are libraries on the tail end that are constantly struggling to keep up. Most of us lie in the middle, maintaining a balance between what we need and what we can afford.



Over the past few decades, electronic resources have impacted library workflows, staffing, and budgets. Now that most libraries have gotten past the catalog automation phase, our attention has been drawn to the evolutionary transition of print to electronic publication. Computers with CD-ROMs and online databases have replaced reference rooms plagued by multi-volume indexes taking up vast numbers of shelves. Instead of worrying about sagging bookcases and annual accumulations, we spend our time scrutinizing license agreements and troubleshooting proxy server bugs.

While most of us were happy to shed print indexes in favor of databases, there has been more hesitancy with journals and newspapers.

The issues of access versus ownership heighten when dealing with content rather than indexes and abstracts. Serial collections are a long-term investment, and the online editions of journals are still in relative infancy. Again, this is a situation where the early adopters are singing the praises while the rest of the library world waits for the other shoe to drop. We have taken a leap of faith by adding online formats to our collections, but unlike the dusty tomes that still reside in our stacks, no one knows what will happen to them in ten or fifty years. Consortial relationships and Big Deal packages have encouraged many of the more hesitant libraries to acquire online journal packages, and once our users got hooked on instant online access to content, there is no going back to the days of lines at the photocopier. Full text has become the answer to the procrastinator's prayer.

How do you hold electrons in your hand?

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